LANDOLT TABLES IN PRIMO LEVI'S "BEST IS WATER" FOR VALUE-BASED CHEMICAL EDUCATION

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Abstract

As science education faces the urgent task of rehumanization amid growing technocratic rationality, scientific eponyms, especially in literary contexts, offer a potential of rehumanization for value-based science education. To explore this potential, selected passages referencing the eponym "Landolt tables" from the short story "Best Is Water" by Italian chemist and writer Primo Levi were analyzed in both the original Italian and its English translation. The focus was on anthropomorphization of the eponym, using a range of interpretative theories: existentialism, phenomenology, postmodernism, psychoanalysis, semiotics, structuralism, symbolism, and theological philosophy. The findings suggest that theological philosophy reveals the anthropomorphization of the "Landolt tables" most strongly, while structuralism does so the least. The Italian original highlights psychological and existential moments, whereas the English translation places more emphasis on logical structure and narrative progression, thereby reducing the emotional charge. These results affirm that anthropomorphized scientific eponyms can help restore science education's connection to human values, history, and morality. In doing so, they offer educators a powerful toolkit for rehumanizing chemistry instruction, nurturing not only informed minds but also empathetic and ethically attuned citizens.

Keywords: *anthropomorphization, chemical education, eponym, humanization in education, Primo Levi*

Introduction

In today's world, society faces an urgent need to counteract the ongoing process of dehumanization, particularly in the domains of science and education. Modern civilization is increasingly governed by technocratic and mechanical rationality, which tends to marginalize human values, emotions, and ethical consciousness. This condition demands a shift–a transformation from *dehumanization* to *rehumanization*. Such transformation is only possible through a comprehensive change in educational philosophy and practice, beginning with science education (Aberšek et al., 2023). The field has been identified as a particularly problematic area within modern schooling due to its detachment from humanistic and moral dimensions (Slabin, 2007).

According to Lamanauskas (2009), the current model of science education often disregards the human dimension of scientific inquiry, focusing instead on fragmented knowledge and standardized testing. Education must return to its value-based version–one that instills not only scientific literacy but also moral responsibility, empathy, and global citizenship. This value-oriented approach realigns science teaching with the broader humanistic goals of education. National educational documents across countries

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such as Belarus, Kazakhstan, Latvia, Poland, Ukraine, and the United States reinforce this notion: science education is not just the transmission of knowledge but also the transfer of cultural and ethical values (Slabin, 2017a). This broader view anchors scientific learning in the human experience.

Contributing to this discourse, Elkanova and Chedzhemova (2013) offer a nuanced examination of how humanization and humanitarization have developed within the field of education science. While *humanization* emphasizes the dignity, individuality, and freedom of learners, *humanitarization* stresses the inclusion of culture, ethics, and empathy in curricula. 40 years before this dichotomy was established, educational researchers had considered only *humanization* that "seems to have two connotations. One is the inclusion of "humanities" in science education... Including humanities is an attempt to make science instruction more relevant for today's youth, because the concepts taught in all areas of science reflect upon society... Whereas the first meaning is built around the word "humanities," the second is built around "humanitarian," that is, being involved with the welfare of the individual (Goar, 1972, pp. 23–24). Anyway, this dual framework aligns naturally with the call for a more value-oriented approach to science education.

A powerful, yet often underexplored, tool for realizing this vision lies in the use of *eponyms* in science education. Eponyms are terms derived from the names of scientists, inventors, designers, historical figures. They serve not only as didactic means (vectors of memory and meaning) and linguistic metaphors (Slabin, 2022) but also as axiological means, translating values to students (Slabin, 2019b). E.g., teaching concepts such as Avogadro's number, Le Châtelier–Braun principle, or Beschamp's reaction as more than mere terms–but as windows into the lives and struggles of those who shaped science–can powerfully humanize scientific discourse. Eponyms thus foster empathy and curiosity, linking abstract knowledge with concrete personal stories.

The humanizing potential of eponyms becomes even more significant when they appear in literary contexts. Literature creates a narrative space where the lives behind scientific discoveries can be dramatized, interpreted, and emotionally experienced. In this light, the connection between science and literature emerges not as a marginal curiosity but as a core educational strategy for humanization. As Leonardo Júnior and Massi emphasize in their analysis (2025, p. 2), literary narratives that intertwine with scientific themes help restore the affective, imaginative, and ethical dimensions of science, which are often absent from traditional curricula. Science fiction, in particular, plays a pivotal role in forging this connection. It allows for creative exploration of scientific principles while simultaneously foregrounding existential and ethical questions. It is within these narrative experiments that students encounter science as a profoundly human endeavor, replete with doubts, aspirations, and moral implications.

Italian chemist, writer, and Holocaust survivor Primo Levi stands as a paragon of this approach. His collection *The Periodic Table* blends autobiography, science, and fiction into a form of writing that rehumanizes both chemistry and the figure of the chemist. Levi portrays the chemist not as a mere technician but as a thinker, a survivor, and a narrator of truth. His work was deservedly hailed in 2006 as "the best science book ever written" (Cerruti, 2019), a testament not only to its literary brilliance but also to its philosophical depth and educational value. Levi's texts were experimentally incorporated into chemistry lessons to foster humanistic reflection alongside scientific understanding

(Osorio et al., 2007). When students read about Levi's experiences distilling benzene in presence of potassium (as a replacement for sodium) at university or passing a chemistry exam in the concentration camp, they are exposed to both the material and moral dimensions of science. This dual exposure promotes a kind of scientific literacy that is not only cognitive but also ethical.

While the term "humanization" describes many of these outcomes, it does not fully encompass all the cognitive and emotional processes at play in education. A particularly potent strategy used in both informal and formal educational settings is *anthropomorphization*—the attribution of human characteristics to non-human entities (reactions, substances, glassware, theories, postulates, equations, numbers, tables, formulas, laws, asf.). This literary and cognitive device often arises spontaneously in classroom metaphors: students may describe reactions as "angry," formulas as "mysterious," or tables as "deciding" outcomes. While such expressions may seem fanciful, they reflect a fundamental cognitive strategy that can serve a powerful pedagogical function. Far from being a fanciful distraction, anthropomorphization helps learners grasp abstract scientific ideas by embedding them in familiar emotional and social frameworks. As such, it deserves recognition as a legitimate and powerful tool for humanization in education. Analyzing the relationship between science and art in Levi's *The Periodic Table*, Massi et al. (2022) employ categories of anthropomorphization and *desanthropomorphization*.

Almost all eponyms (not only chemical) occur in Levi's *The Periodic System*. This book, along with Levi's other works, is explored by philosophers, psychologists, and philologists. Analyzing Levi's short story *Best Is Water*, Leonardo Júnior and Massi (2025) found that Levi "humanizes science and philosophical topics; problematizes the technical job of a chemist and the use of prototypes; expresses a conception of reality that is stratified and in movement, confronting neopositivist science and empirical realism; shows the importance of the chemist's sensibility in raw reality."

Research Problem

Although eponyms, especially when embedded in literary context, hold a significant potential for advancing value-based science education, their educational function remains largely underexplored. While Levi's *The Periodic System* has occasionally been examined from pedagogical perspectives (Osorio et al., 2007), existing research has not yet systematically addressed the role of eponyms, nor their capacity to foster ethical reflection, historical awareness, and humanization in science teaching.

Research Aim and Research Questions

The aim of this study was to analyze selected passages from *Best Is Water* that mention the eponym *Landolt tables*, using a range of interpretative theories, with emphasis on how these passages enact processes of humanization, anthropomorphization, and the pedagogical benefits they offer for value-based chemical education:

1. Which interpretive theory most effectively reveals the anthropomorphization of the eponym *Landolt tables* in the selected passages?
2. To what extent does anthropomorphization differ between the Italian original

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and the English translation of *Best Is Water*?

3. How can the anthropomorphization of scientific eponyms, as exemplified in Levi's story, be harnessed to support humanization for value-based chemical education?
4. How does the presence of *Landolt tables* as an eponym contribute to students' historical and cultural understanding of chemistry?

Research Methodology

General Background

Analysis of literary texts traditionally involves close reading, intertextual analysis, and attention to rhetorical, symbolic, and thematic structures. Literary research often extends beyond the surface of narrative to explore deeper patterns of meaning, ideological undercurrents, and stylistic strategies. These approaches are particularly valuable when examining texts that cross disciplinary boundaries, such as Levi's creative writing.

An important method used in this study was content analysis, which allows for systematic identification and interpretation of recurring themes, symbols, and references. Content analysis is used to study specific aspects and topics in a number of chemistry textbooks (Marfuatun et al., 2024). It is especially useful for tracking the presence and function of eponyms, and the author used it in the past, studying Mendeleevian eponyms (Slabin, 2023).

To deepen this inquiry, the study utilized a set of interpretive theories selected for their shared focus on language as an analytical object. These included structuralism, semiotics, psychoanalysis, symbolism, existentialism, phenomenology, postmodernism, and theological philosophy. Although some of the listed theories are philosophical, the adjective "interpretive" is preferred over "hermeneutic" as more universal. Neopositivism was not selected because, as Leonardo Júnior and Massi (2025) observe, Levi's *Best Is Water* appears to confront and critique the assumptions of neopositivist science and empirical realism. Therefore, interpretive theories, focusing on language as an analytical object, are better suited to uncovering how the eponym *Landolt tables* is anthropomorphized and how this contributes to the humanization of science.

Sample

This research did not involve human subjects; rather, it consisted of a theoretical analysis of a selected literary text by Levi. Given that Levi's complete body of creative writing spans three volumes–amounting to 2910 pages–analyzing it in full would be an enormous undertaking. For this study, a focused and manageable sample was chosen: the six-page short story *Best Is Water*, from *The Complete Works of Primo Levi* (2015). The story's title echoes the first line of a poem by the ancient Greek poet Pindar, underscoring Primo Levi's classical education and evoking the enduring dialogue between classical and scientific cultures (Cravero, 2018): "Best is water, while gold, like fire blazing in the night, shines preeminent amid lordly wealth" (Pindar, 1997, p. 47). By the way, this Greek poet introduces another remarkable eponym–the *Pindaric style*. He employed the triadic structure attributed to Stesichorus, comprising a strophe followed by a metrically

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corresponding antistrophe and concluding with an epode, written in a contrasting metre that provided resolution.

The protagonist in this story is Boero, a young scientist, who finally earns his place in the laboratory, but finds the work–repeating viscosity measurements of water–tedious and soul-crushing. Doubt creeps in when his results don't match the values in *Landolt tables*, i.e., experimental viscosity data tables for gases and pure liquids from the German book *Physikalisch-chemische Tabellen* by Hans Landolt and Richard Börnstein, published in 1936. For this doubt, Boero's supervisor Curti berates him. Boero flees to the river Sangone, pondering whether to quit or falsify data, when he notices the river water behaving strangely. Driven by instinct, he samples it and confirms: its viscosity is 30% too high. As more rivers follow, Boero and Curti reconcile and co-author urgent reports. The phenomenon spreads–Po River thickens, then rains grow viscous across Europe, disrupting agriculture, transit, and industry. Nature shifts: trees die, cities clog, machines fail, and the world slows. Human bodies are afflicted: blood thickens, energy fades, tears cannot form, and life expectancy plummets. Europe succumbs to a new element of suffering–silent, heavy, and incurable. And from this sluggish fate, there seems to be no redemption–only a dense, creeping decline.

This particular story was selected for two key reasons that align closely with the research aim: (a) it includes a scientifically significant eponym–Landolt tables, and (b) it vividly portrays the protagonist's attitudes and emotional engagement with scientific knowledge, making it an ideal case for exploring humanization and anthropomorphization in science education.

The selected passages are presented in Table 1.

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Table 1

Passages from Primo Levi's "Best Is Water" Mentioning Landolt Tables

Italian original[a]	English translation[b]
…C'era, e non era splendido come si era aspettato; non era neppure divertente, era anzi molto triste pensare a) che non basta essere in un laboratorio per sentirsi mobilitato, un soldato sul fronte della scienza; b) che avrebbe dovuto, per almeno un anno, dedicarsi a un lavoro diligente e idiota, anzi, diligente appunto perché idiota, un lavoro fatto solo di diligenza, un lavoro già fatto da almeno dieci altri, tutti oscuri, tutti probabilmente già morti, e morti senz'altro nome che quello smarrito in mezzo ad altri trentamila, nel vertiginoso indice per autori delle ***Tabelle del Landolt.***	…He had made it, yet none of it was as marvelous as he had expected it to be; it wasn't even fun. In fact, it was rather sad to think (a) that just being in a laboratory didn't make you feel mobilized, a soldier on the scientific front; and (b) that, at least for a year, he would have to dedicate himself to a diligent and mindless job, diligent precisely because it was mindless, a job that required diligence alone, a job that had already been done by at least ten others, totally unknown, all of whom were probably dead, having died without any name greater than the one lost among thirty thousand others on the vertiginous list of authors found in ***Landolt's tables***.
…Impiegò tutto il pomeriggio a ripetere le misure, ma non fece i calcoli perché non voleva guastarsi la serata. Li fece il mattino seguente, e, sure enough, la differenza rimaneva: non solo, era perfino leggermente aumentata. Ora si deve sapere che le ***Tabelle del Landolt*** sono sacre: sono la Verità. Uno viene incaricato di rifare le misure solo per sadismo, sospettava Boero: solo per verificare la quinta e la quarta cifra significativa, ma se la terza non corrisponde, ed era il suo caso, come diavolo la mettiamo? Si deve sapere che mettere in dubbio il ***Landolt*** è molto peggio che mettere in dubbio il Vangelo: se hai torto ti copri di ridicolo e ti comprometti la carriera, e se hai ragione (che è improbabile) non ne ricavi né utilità né gloria, bensì la nomea di, appunto, contabile, pignolo e insetto; e tutt'al più la gioia trista di aver ragione dove un altro ha torto, che dura lo spazio d'un mattino.	…He spent all afternoon repeating the measurements but, not wanting to ruin his evening, didn't do the calculations. He did them the following morning and, sure enough, the difference was still there, and not only that, there was even a slight increase. Now, it should be said that ***Landolt's tables*** are sacred: they are the Truth. One is given the task of retaking the measurements out of sadism, Boero suspected. Only the fifth and fourth significant figures have to be verified, but if the third doesn't correspond, and this was his case, what the hell are you supposed to do? To doubt ***Landolt***, it should be said, is far worse than to doubt the Gospels. If you are wrong, you are smothered with ridicule and risk your career, and if you are right (which is unlikely) you don't get any more credit or glory than, in fact, the accountant, the wonk, and the insect. At the very most you got the pathetic joy of being right when another was wrong, which lasted as long as a morning.

Note. [a]Italian original from Levi, P. (2015). Tutti i racconti. Ottima è l'acqua. https://dokumen.pub/tutti-i-racconti-9788858423608.html

[b]English translation from Goldstein, A. (Ed.). (2015). The complete works of Primo Levi (Vol. 1). Liveright Publishing Corporation, pp. 742–743.

Data Analysis

After close reading, the passages were analyzed from the perspectives of the eight interpretive theories.

Research Results

The results of this analysis are presented in Table 2.

Table 2

Anthropomorhization of Landolt Tables Revealed by the Eight Selected Interpretive Theories

Theory	Brief analysis of the passages from the perspective of this theory
Existentialism	Boero invests Landolt tables with ontological authority. They are no longer just scientific tools; they become arbiters of what can be known, said, or discovered. His freedom as a being-for-itself (capable of self-definition and interpretation) is constrained by the unyielding being-in-itself of Landolt tables (their fixed, authoritative presence). Boero anthropomorphizes Landolt tables in three key ways: (a) they appear to respond—negatively—to his discovery; (b) they seem unforgiving, emblematic of an absurd, unfeeling cosmos; (c) they represent a factical limit—Boero is "thrown" into a world where Landolt has already spoken, and he must now answer. This becomes a test of existential authenticity: does he conform to authority or risk the anguish of asserting originality?
Phenomenology	Boero's orientation toward Landolt tables enacts a reduction of doubt. They are not encountered as contingent or fallible but are constituted in his lifeworld as eidetic, unchangeable, and quasi-personal ideals. This is not a rhetorical embellishment; it reveals a pre-reflective structure of experience wherein the tables appear as more-than-object. Levi, through Boero, allows Landolt tables to appear with intentional force: they are not merely data, but a center of normativity. This normativity mimics subjecthood—the tables issue not facts but judgments. Thus, phenomenologically, the anthropomorphization lies in how Landolt tables live as authoritative subjectivity.
Postmodernism	From a postmodernist perspective, anthropomorphization occurs through metafictional performance. Levi uses Boero's reverence for Landolt tables as a self-aware exaggeration. The tables are elevated from a technical compendium to a sentient judge, not as a sincere belief, but as a textual maneuver critiquing the fetishization of objectivity: (a) Boero's refusal to doubt the tables arises from a narrative fiction, not rationality; (b) The anthropomorphization is ironically theatrical—it is not meant to convince but to expose the absurdity of outdated epistemic authority. Thus, postmodernism reveals a mock-anthropomorphization, one that is not genuine but performed, highlighting the constructedness of both scientific and narrative truth.
Psychoanalysis	Boero projects onto Landolt tables the role of a punishing paternal figure—a symbolic embodiment of the Law of the Father. Their silent authority functions as symbolic castration, stripping Boero of autonomy. His anxiety in being "wrong" is not merely intellectual; it is libidinal, expressing the dread of existential invalidation. The tables do not just correct—they condemn, enacting a scenario of Oedipal punishment. Anthropomorphization here occurs through projection and repression: Landolt tables become an internalized figure of judgment that shapes Boero's identity.
Semiotics	Anthropomorphization is reduced to a function of signification. Landolt tables act as a signifier of scientific objectivity, and Boero's reactions are expressions of the cultural codes surrounding that sign. Anthropomorphization is not literal but metonymic: Boero responds not to the object itself but to its position in the code of science. Thus, while signs of anthropomorphization exist, they are always secondary effects of a broader system of meaning. The subjectivity of the tables is a discursive illusion, structured by their symbolic function.
Structuralism	Structuralism reveals the underlying system in which Landolt tables operate but is ill-equipped to account for affective projection or anthropomorphic experience. It sees Landolt tables as a node in a system of epistemic relations—a position, not a presence. Boero's emotional, psychological, or spiritual reactions are flattened into functions within a linguistic or scientific structure. As a result, structuralism minimizes anthropomorphization, treating it as non-essential to the production of meaning.

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Symbolism	Levi anthropomorphizes Landolt tables by portraying them not as passive repositories of chemical constants but as active arbiters of scientific truth. They are emotionally and spiritually elevated, commanding quasi-religious obedience. This portrayal is not ironic but ritualistic. Symbolically, Landolt tables become a totem of scientific orthodoxy; to question them is to commit blasphemy. Boero's intellectual crisis is framed as a struggle against the tyranny of a silent oracle. The fear of being "betrayed" by Landolt tables evokes a sense of punishment and divine judgment. Thus, in symbolic terms, the tables are not merely anthropomorphized but deified—they possess a patriarchal presence that demands loyalty, obedience, and fear.
Theological philosophy	In Boero's experience, Landolt tables are not mere scientific references; they are treated as infallible, eternal, and unchallengeable. These are not epistemic attributes but divine qualities. Viewed through this lens, Landolt tables are fully anthropomorphized as a quasi-deity, endowed with the power to judge, condemn, and sanctify. Boero's reactions—fear, awe, devotion—are read not as scientific attitudes but as acts of reverence. Theological philosophy thus clarifies the moment when Landolt tables cross the boundary from inert object to holy subject—a rare and heightened form of anthropomorphization.

As follows from Table 2, of all the theories, theological philosophy most powerfully exposes anthropomorphization by interpreting it as the result of sacralizing projection. Semiotics and especially structuralism seem to reveal anthropomorphization to the least extent. The latter is powerful in revealing how meaning is produced within systems, but it is poorly equipped to address emotive, projective, or interpersonal dimensions of anthropomorphization.

Table 3 summarizes subtle differences accompanying Landolt tables in the original and in the translation.

Table 3

Juxtaposition of Passages with Landolt Tables in Original Italian and Their English Translation

Italian source text	**Translated English version**
un lavoro diligente e idiota, anzi, diligente appunto perché idiota	*a diligent and mindless job, diligent precisely because it was mindless*
The Italian emphasizes existential futility and the paradoxical nature of diligence devoid of intellect. The English captures the meaning but renders it more gently, downplaying the emotional strain and existential despair.	
nel vertiginoso indice per autori delle Tabelle del Landolt	*the vertiginous list of authors found in Landolt's tables*
The Italian evokes vertigo as an embodied, almost nauseating response to anonymity within massified authorship. The English preserves the image but focuses on the document's structure more than its phenomenological impact.	
le Tabelle del Landolt sono sacre: sono la Verità	*Landolt's tables are sacred: they are the Truth*
Both versions render the tables as quasi-religious symbols, but the Italian capitalizes Verità to heighten their ontological authority. The English reflects reverence but with slightly less intensity.	

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rifare le misure solo per sadismo	*retaking the measurements out of sadism*
The critique of scientific bureaucracy is clear in both, but the Italian feels more visceral and direct, attributing emotional malice ("sadismo") to institutional practice. The English retains the accusation but reads more like bureaucratic absurdity than cruelty.	
come diavolo la mettiamo?	*what the hell are you supposed to do?*
Both versions preserve Boero's exasperation, but the Italian has a slightly more rhetorical, internal monologue feel. The English reads more like external complaint.	
mettere in dubbio il Landolt è molto peggio che mettere in dubbio il Vangelo	*to doubt Landolt... is far worse than to doubt the Gospels*
Both versions convey theological gravity, but the Italian's phrasing is more assertive and culturally anchored. The English comparison works but slightly tones down the blasphemous connotation.	
a nomea di, appunto, contabile, pignolo e insetto	*the accountant, the wonk, and the insect*
The Italian string of insults diminishes Boero's identity in social and ontological terms. The English equivalent preserves the metaphorical sting, though "wonk" is culturally specific and may soften the dehumanization inherent in "insetto."	

As seen from Table 2, the Italian original emphasizes emotions, drawing out the affective weight of scientific labor, while the English translation generally opts for a more measured tone. In Italian, Levi highlights psychological and existential dimensions, portraying the protagonist's experience as marked by anxiety, frustration, and a sense of insignificance. The English version, in contrast, places more emphasis on logical structure and narrative progression, reducing the emotional charge. The Italian tends to personify scientific instruments and data systems, lending them a quasi-sentient presence, whereas the English frames them more as tools or frameworks. Additionally, the Italian foregrounds metaphysical and moral overtones, aligning scientific truth with theological and philosophical stakes, while the English translation moderates these aspects, offering a more secular and procedural rendering. Ultimately, the Italian text invites deeper reflection on the human condition within science, while the English seeks clarity and coherence, sometimes at the expense of pathos and symbolic density.

Discussion

Landolt tables are, in fact, a shortened form of the less commonly used eponym Landolt–Börnstein tables. The full version is likely less popular for several reasons, among them the influence of ethnocentrism (Slabin, 2017b, 2019a). It is intriguing to consider how anthropomorphizing the tables might shift if Boero had engaged with the full eponym, Landolt–Börnstein, rather than simply Landolt. From a *phenomenological* standpoint, this label would underscore the collaborative and cumulative nature of the tables' creation, disrupting their perception as a singular, authoritative source. In an *existentialist* frame, including Börnstein would further humanize the tables by emphasizing their origin in human labor rather than presenting them as an abstract, impersonal force. Through a *postmodernist* lens, the full eponym challenges the illusion of a monolithic authority, foregrounding the constructed and contingent nature of the

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tables and inviting skepticism toward claims of infallibility. Further, from the perspective of *theological philosophy*, invoking Landolt–Börnstein elevates the work's symbolic sanctity. It evokes a sacred text not authored by a lone prophet but by a prophet and his apostle.

Based on the interpretive analyses of the anthropomorphization of Landolt tables in Levi's story, we can see that the ascription of human or even divine qualities to scientific eponyms opens a crucial path toward humanization in value-based chemical education. In what follows, I will elaborate on how this literary device–anthropomorphization–can be harnessed pedagogically and ethically to reframe the teaching of chemistry in more human-centered, culturally sensitive, and morally attuned ways.

Restoring affect to scientific inquiry. In Levi's portrayal, Landolt tables are not merely data; they are emotionally charged figures–guardians, oracles, patriarchs, or deities. Through Boero's reverence, fear, and awe, scientific knowledge itself becomes a locus of existential struggle. This dramatization restores affect to the scientific process. Rather than teaching chemistry as a dry accumulation of formulas and constants, educators can foreground the deeply personal encounters scientists have with authoritative knowledge: the fear of error, the joy of discovery, the pressure to conform, and the courage to dissent. This approach aligns with recent findings on the educational value of chemical eponyms for humanization and historicism (Slabin & Krasitski, 2017).

Anthropomorphization in this context is not a mistake–it is a psychological and narrative resource. It enables students to recognize that scientific practice is deeply human, grounded in values, emotions, and ethical dilemmas. By highlighting the emotional dynamics at play in even the most technical of interactions (e.g., reconciling a new discovery with an established eponym), educators can reframe chemistry as a space of moral agency and personal growth.

Recognizing the normative power of scientific authorities. Anthropomorphizing Landolt tables also unveils the normative structures embedded in scientific knowledge. As theological philosophy and phenomenology reveal, Landolt tables are experienced not just as helpful tools, but as figures of judgment and standardization–entities that impose limits, demand conformity, and validate legitimacy. When eponyms like Landolt tables are taken as absolute, they begin to act with the force of social norms.

In value-based education, this recognition becomes pedagogically generative. It invites students to question how scientific authorities are constructed, whom they serve, and what values they carry. If a table of constants can be treated as infallible, what happens to scientific creativity, diversity of thought, or marginalized perspectives? Anthropomorphization helps dramatize this tension. It lets us ask: What kind of "person" is this scientific eponym? A tyrant? A teacher? A wise ancestor? In doing so, it opens a critical dialogue about authority, humility, and the ethics of knowledge.

Bridging technical mastery and ethical reflection. One of the challenges in STEM education is the bifurcation between technical instruction and ethical or philosophical reflection. By anthropomorphizing eponyms like Landolt tables, Levi stages a convergence: Boero's technical dilemma becomes a moral and existential one. Should he challenge authority? Can truth emerge from contradiction? Is he merely wrong, or is he a pioneer?

This convergence can be a model for chemical educators. When students learn that Levi's protagonist is not simply "checking his data," but engaging in a struggle with a

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silent, omnipotent figure–Landolt tables–they begin to see science as a human endeavor. They see that empirical rigor does not exclude moral reflection; it requires it. Students can be encouraged to narrativize their own encounters with scientific challenges, to name their anxieties and convictions, and to personify the systems they feel constrained by. Such exercises make chemistry more inclusive, introspective, and humane.

Promoting historical consciousness and discursive empathy. Eponyms, by definition, carry names–human names–often of European, male, and institutionally empowered scientists. Anthropomorphization helps make these names more than citations: it makes them presences as was shown in recent research (Slabin, 2019b). In Levi's story, "Landolt" is not merely a bibliographic entry but a quasi-character with whom Boero interacts. This dramatization invites historical inquiry: Who was Landolt? Why is his name here? It also invites discursive empathy: How might different people feel in the face of such a name?

Educators can leverage this literary anthropomorphization to humanize science historically. By exploring who gets to become an eponym–and how those names function as gatekeepers or guardians of truth–students develop a deeper understanding of how science is shaped by social forces. It opens up space for discussions on diversity, inclusion, and the legacy of colonial and patriarchal systems in the construction of scientific knowledge.

Encouraging moral imagination and scientific humility. Finally, anthropomorphization cultivates moral imagination. When Landolt tables are portrayed as fallible gods or stern patriarchs, students are implicitly asked: What if these were real people? What kind of conversation would you have? Would you obey? Disagree? Plead? This narrative frame helps young scientists recognize that authority in science must be earned, not assumed. That humility–not just precision–is a scientific virtue.

Through Levi's story, the anthropomorphized eponym becomes a mirror. It reflects not just the standards of chemistry, but the fears, hopes, and moral responsibilities of those who practice it. To humanize chemical education, we must allow these reflections to surface, to be spoken, and to be shared.

The presence of Landolt tables as an eponym in Levi's *Best Is Water* offers students a unique entry point into the historical and cultural understanding of chemistry. As a named reference, "Landolt" points not only to a compendium of experimental data but also to the individual chemist Hans Heinrich Landolt, whose work in the late 19th century contributed significantly to physical chemistry. Recognizing this eponym allows students to trace the lineage of chemical knowledge, understanding that data tables are not abstract givens, but curated repositories of cumulative human labor. These tables represent decades of scientific measurement, collaboration, correction, and trust–acts deeply embedded in both historical context and cultural values of precision, reliability, and authority.

Through Levi's literary treatment, Landolt tables become more than a technical reference; they are transformed into a symbol of scientific orthodoxy and institutional memory. Levi's narrative stages a confrontation between an individual chemist (Boero) and this impersonal monument of collective knowledge. Students are thus exposed to the affective and philosophical tension inherent in working within a tradition that both empowers and limits. By framing Landolt's tables as a quasi-sacred entity–"they are the Truth"–Levi dramatizes the reverence with which scientists often regard historical data,

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while subtly questioning the human cost of such reverence: loss of creativity, fear of error, and submission to an infallible standard.

This narrative lens helps students understand that scientific culture is not neutral. It is shaped by values–of rigor, repetition, humility, and conformity–that have been historically encoded into practices like data tabulation. The fact that Levi refers to Landolt by name foregrounds the human origins of scientific systems often perceived as purely objective. Thus, the eponym fosters a sense of continuity with past generations, allowing students to see themselves as participants in a cultural and intellectual tradition. They inherit not only the data but also the ethos and the emotional entanglements embedded in the scientific enterprise.

In this way, Landolt tables–through Levi's depiction–serve as a powerful pedagogical tool, reminding students that chemistry is not just a technical field, but a deeply human one, shaped by its historical figures, cultural rituals, and evolving ethical debates.

Conclusions and Implications

This study has demonstrated that the anthropomorphization of scientific eponyms–exemplified by Landolt tables in Primo Levi's *Best Is Water*–is not only a literary flourish but a vital pedagogical strategy in value-based science education. By interpreting scientific data through human-like metaphors, Levi invites readers to experience chemistry as a deeply personal, ethical, and emotional domain. This reframing combats the alienation often associated with decontextualized technical knowledge and supports a more holistic model of scientific literacy–one that embraces both cognitive and affective dimensions. Among the interpretive frameworks employed, theological philosophy proved most effective in uncovering the sacral, reverent attitudes that students and scientists may unconsciously project onto authoritative data sources. Furthermore, the comparison of Levi's Italian original and its English translation highlights how language choices influence the emotional resonance and ethical weight of scientific narratives. Ultimately, the findings affirm that literary strategies like anthropomorphization can restore science education's connection to human values, history, and morality. In doing so, they offer educators a powerful toolkit for rehumanizing chemistry instruction, nurturing not only informed minds but also empathetic and ethically attuned citizens.

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